

Interior Bents Super/Substructure Connection: Two rows of 17 elastomeric bearing pads (Type V pads with 2 inch diameter anchor bolts)

End Bent Super/Substructure Connection: One row of 17 elastomeric bearing pads (Type V, 2-1/4 inch or 57 mm thick)

Bearings: Bearings at the end bents are expansion. Bearings at Bents 1 and 3 are all expansion. All bearings at Bent 2 are fixed.

Geotechnical Summary

For this analysis, one of the three interior drilled shaft bents was modeled. Five soil borings were performed by NCDOT for each of the interior bents. For Bent 1, they were labeled B1-A, B1-B, B1-C, B1-D, and B1-E. All borings showed similar profiles, except B1-E.

The profiles can generally be characterized as residual and composed of approximately 10 feet (3.2 m) of low N-value material overlying weathered and parent rock. The groundwater table was encountered approximately 10 inches (0.25 m) below the ground surface. Scour effects are considered because the bridge crosses a small stream that has a relatively high flood elevation.

The borings indicate a ten foot thick layer of clayey silt and sandy clay which has N-values between 7 and 17 blows per foot. Below that, weathered or slightly to severely fractured black gneiss was encountered. Recovery ratios were between 0 and 45% in the weathered material, and generally 100% in the parent material. RQD values were typically 0% in the weathered rock and between 50 and 90% in the sound gneiss.

Boring B1-E shows silty clay and silty sands were encountered to depths of 10 ft (3.1 m) with N values averaging 10 blows per foot. This layer is underlain by pea sized alluvial gravels and sandy clays with N values of 46 and 68, respectively. Finally, very dense silty sands (likely weathered rock) with N values in excess of 100 are encountered. Scour elevations on this boring are indicated to depths of 22.5 ft (7 m), which leaves